

## **The East Siberia Basin as a Re-Emerging Frontier**

**Sergey Vasyutkin<sup>1</sup>, C M. Duque<sup>1</sup>, A V. Gaiduk<sup>2</sup>, and O V. Bakuev<sup>2</sup>**

<sup>1</sup>BP Exploration Operating Company Ltd, Moscow, Russian Federation.

<sup>2</sup>PJSC "Rosneft", Moscow, Russian Federation.

### **ABSTRACT**

East Siberia is a large prolific hydrocarbon region in the east of Russia, extending from the Arctic Ocean in the north to the Altai-Sayan fold belt in the south, framed by the Enisey and Lena rivers to the west and east. Many giant oil and gas fields have been discovered in Precambrian stratigraphy across various East Siberian provinces since exploration began in the 1960s. Verkhnechonskoye field has reserves of more than 1.1Bbl of oil and 1.1 Tcf of gas; other fields such as Yurubcheno-Takhomskoye, Kuymbinskoye, Talakanskoye and Srednebotuobinskoye share more than 3 Bbl of recoverable oil and over 15 Tcf of recoverable gas between them. The primary plays are carbonate and clastic reservoirs of Riphean, Vendian and Cambrian ages beneath an extensive Lower Cambrian salt top-seal, charged mainly from Riphean-Vendian source rocks. Riphean dolomites, Vendian clastics and Vendo-Cambrian carbonates have high primary porosity and also underwent a series of post-depositional events leading to more complex heterogeneity. The overlying Cambrian seal, a series of alternating salt and carbonate strata, has retained good integrity and preserved the petroleum system throughout. Both Riphean and Vendian source rocks are laterally extensive, but also vary considerably across the Siberian platform. The Cambrian source rock interval is represented by carbonaceous mudstones with high TOCs, while the Vendian succession has lower TOC continental red beds at the base and black mudstones with higher organic content in the upper intervals. Structural trap formation for the clastic Vendian play began in the Ordovician. Lower Cambrian carbonates were preserved as smaller individual carbonate build-ups and larger barrier reefs and bars. Recent advancements in the development of a second train for the East Siberia-Pacific Ocean export oil pipeline, and the Power of Siberia gas pipeline, have triggered a new cycle of exploration and development in areas that have previously been lightly developed and explored. BP has been an active player in East Siberia through TNK-BP subsidiaries, and recently re-entered the basin to develop the Srednebotuobinskoye field with reserves of just over 850 MMbbl of oil. BP is also jointly exploring for new fields over a large area to the northwest of this field. The Srednebotuobinskoye field is currently in its first phase of production and appraisal.